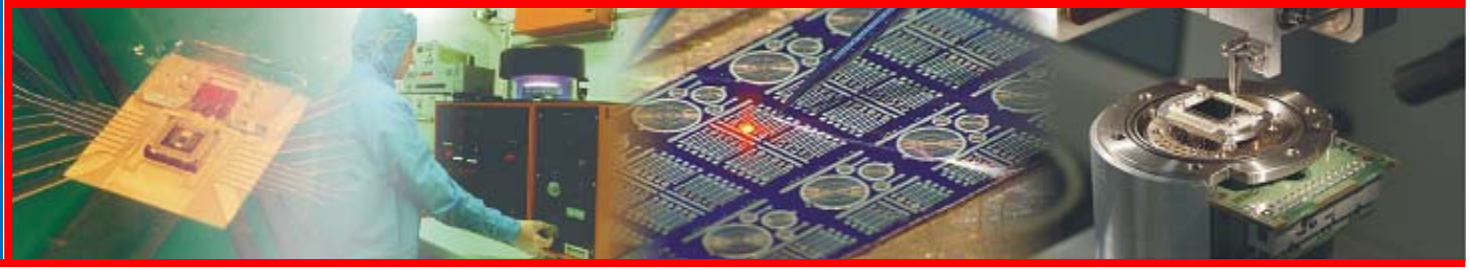
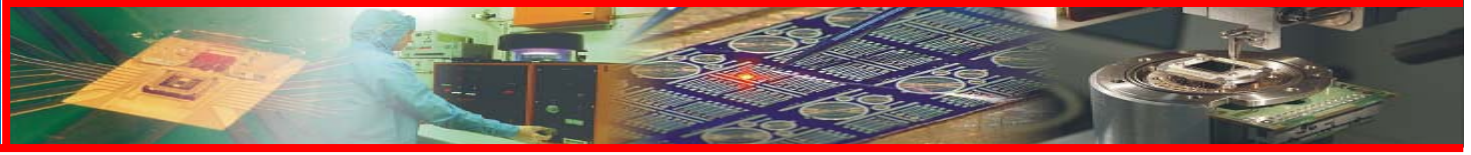


ACCORD

Advanced Components Cooperation for Optoelectronics Research and Development

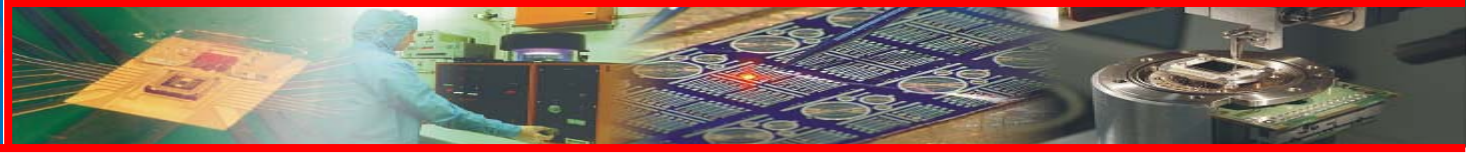
ACCORD is an EU funded FP6 Specific Support Action (SSA)

ACCORD Introduction



IMEC (co-ordinator)	**B**
EPIC	**F**
Multitel	**B**
HES-SO	**CH**
Wroclaw Univ. of Technology	**P**
Sagem Défense Sécurité	**F**
Scottish Optoelectronics Association SOA	**UK**
Perfos	**F**

ACCORD Objectives

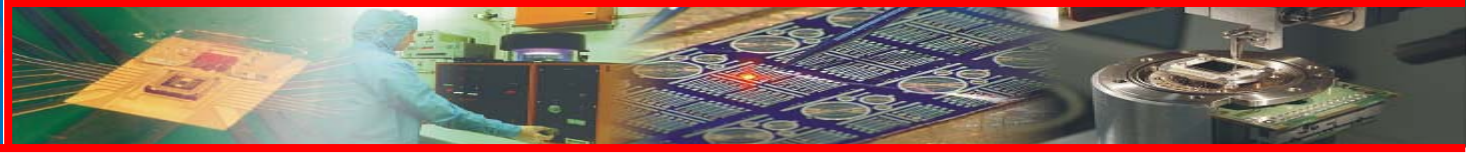


The ACCORD project has the objective

- to put **pre-competitive** photonic components and systems in the hands of researchers and students
- at **no net cost** to the university or to the company that furnishes the prototypes and
- to facilitate transfer of the university results for potential end-users especially SMEs in **new markets, new applications**.

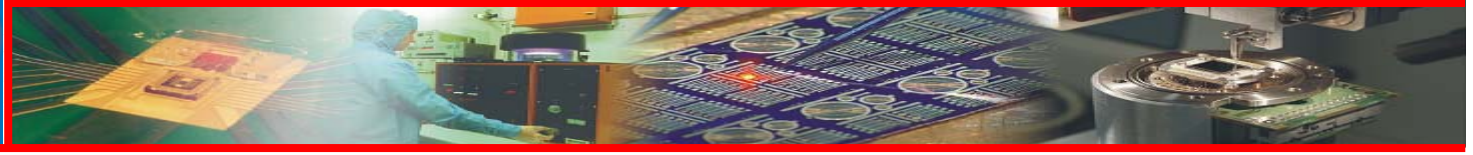
ACCORD runs from: 01/09/06 – 31/08/09

ACCORD Objectives



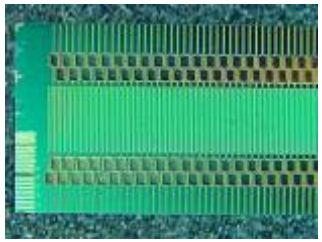
- On the **Operational side** the project will demonstrate, through 10 concrete examples, the positive product of enhanced R&D cooperation between industry (component suppliers & end-users) and universities in Europe.
- On the **Exploratory side**, the project will develop specific deliverables on the administrative aspects of this initiative that can be used to establish an on-going programme (such as a Europractice programme)

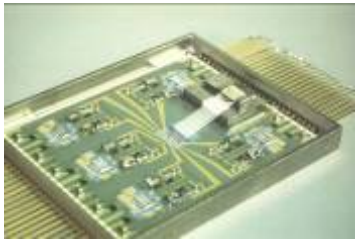
ACCORD Scheme

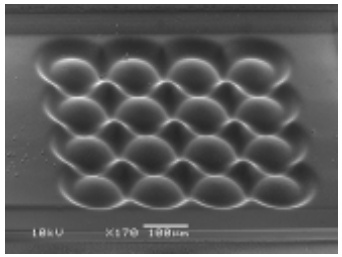


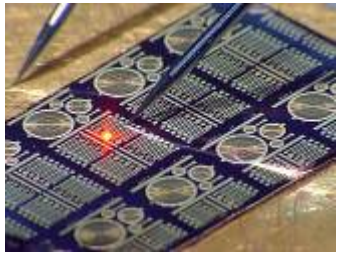
ACCORD opens a call to component manufacturers

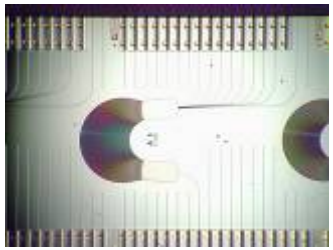
Component manufacturers respond by submitting components in area of photonics:



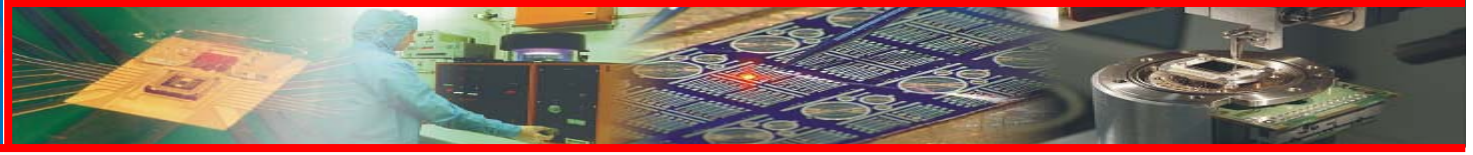






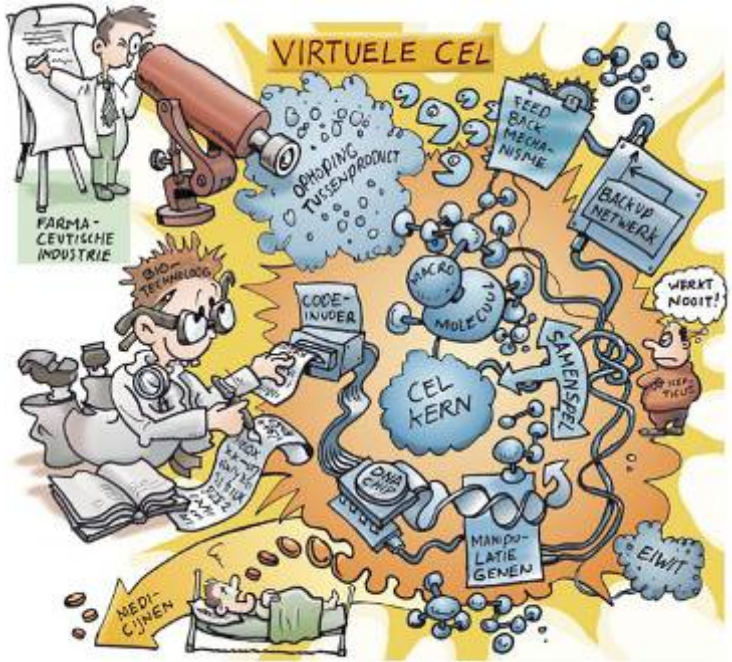


ACCORD Scheme

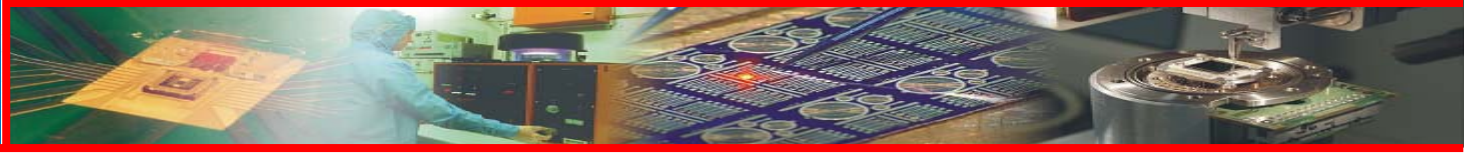


ACCORD lists components and opens a call for R&D projects

Universities respond by submitting proposals



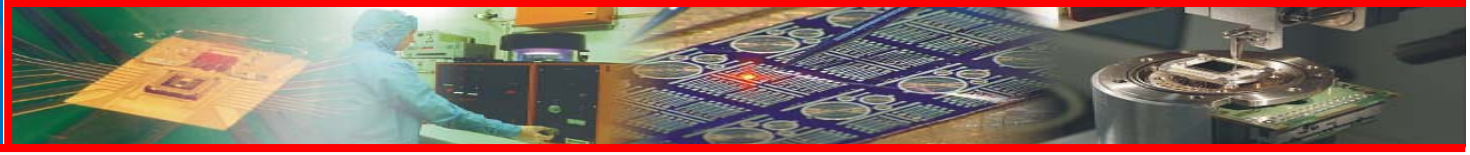
ACCORD Scheme



ACCORD evaluates submitted R&D proposals

- independent review committee
- based on
  - scientific value
  - new applications
  - possible involvement of end-users
  - training opportunities
  - cost for value
  - resources & expertise
- preferably no existing relation Supplier «» University

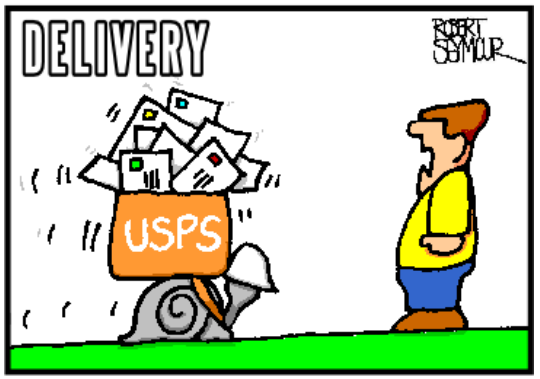
ACCORD Scheme



Component supplier & University come to agreement

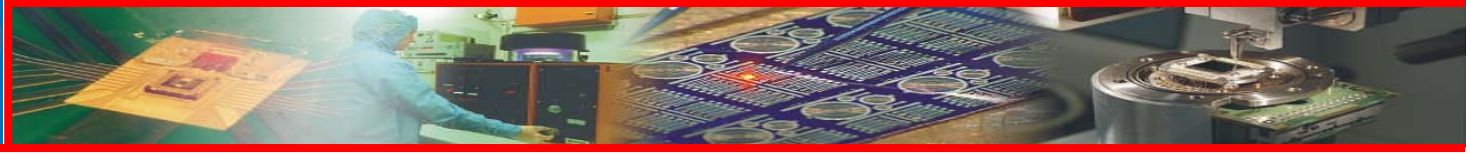
ACCORD buys the component and delivers it to the University

Du Jour



THAT explains everything.....

ACCORD Scheme



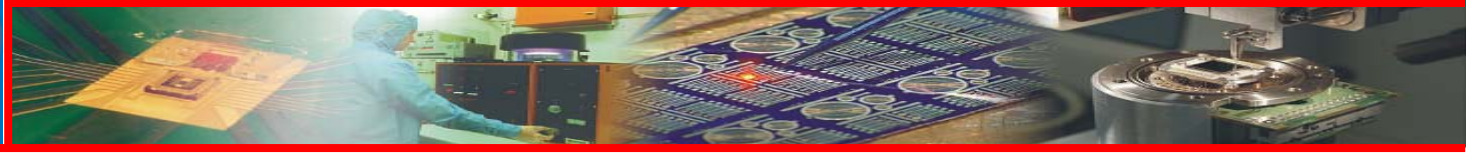
ACCORD follows R&D progress

R&D Projects are requested to present progress & results at

SPIE Photonics Europe 2008

ECOC 2008

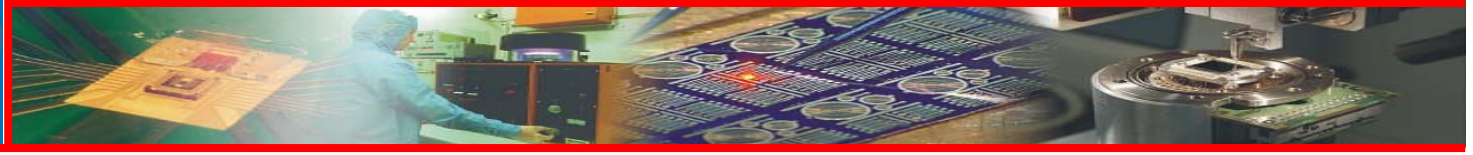
Specific issues



Specific issues

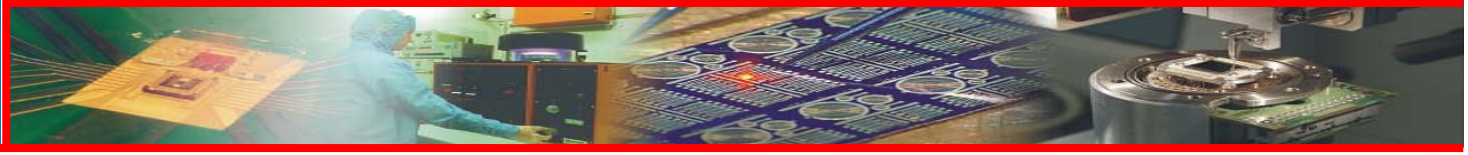
1. ACCORD does not intervene in IPR agreement
2. ACCORD remains owner of component
3. Component supplier : EU or associated countries
4. R&D Projects:
   - Only Universities
   - Only EU or associated countries
5. Scientific publications are exclusively an affair between the company and the university
6. ACCORD publishes results of exchanges to the public

Timeline



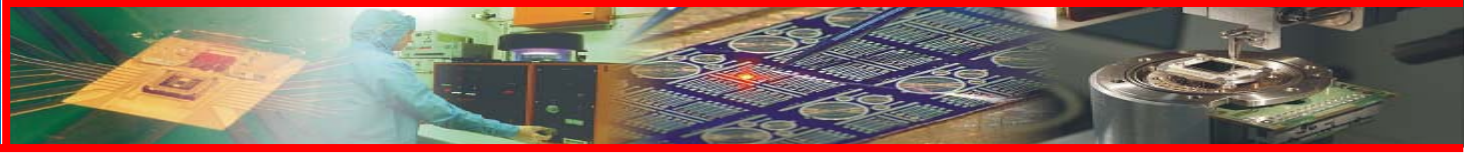
1st Call for components	(22/20):	15/01/07 – 28/02/07
1st Call for R&D Projects	(15/13):	12/03/07 – 13/04/07
Purchase of components:	(5):	01/06/07 – 31/08/07
Start of the projects	(5):	01/09/07
2nd Call fort R&D Projects	(4/3):	22/10/07 – 16/11/07
Start of the projects	(1):	01/03/08
2nd Call for components	(15/15):	01/01/08 – 31/03/08
3rd Call fort R&D Projects:		15/04/08 – 16/05/08

Project 1: Univ. St. Andrews (UK) & Lovalite (F)

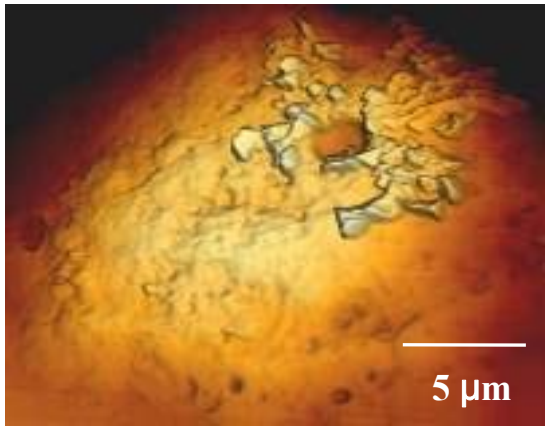


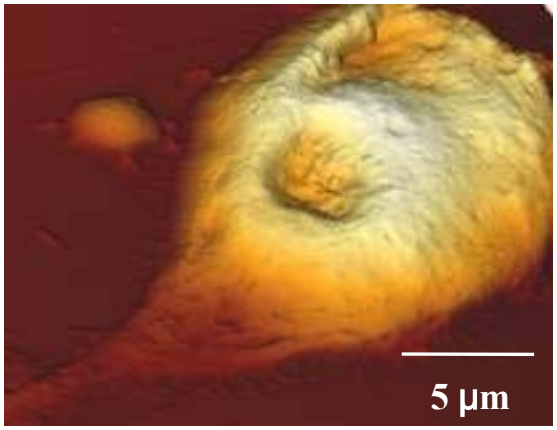
Subject:	Photoporation studies
Component:	Custom Optical Fiber Face components
Contract signed:	23 September 2007

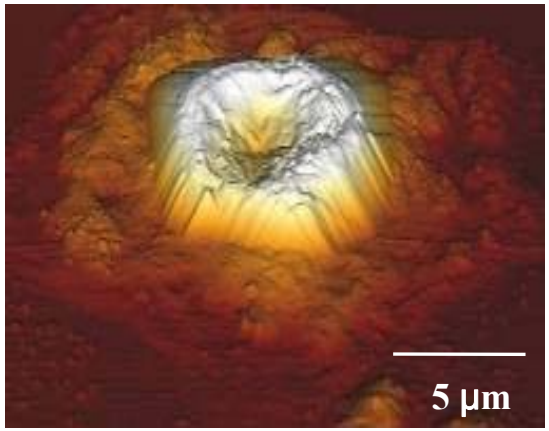
Project 1: Univ. St. Andrews (UK) & Lovalite (F)



- CHO cells are fixed using formaldehyde immediately after laser treatment.
- Subsequent AFM scanning reveals pore formation on the cell membrane.







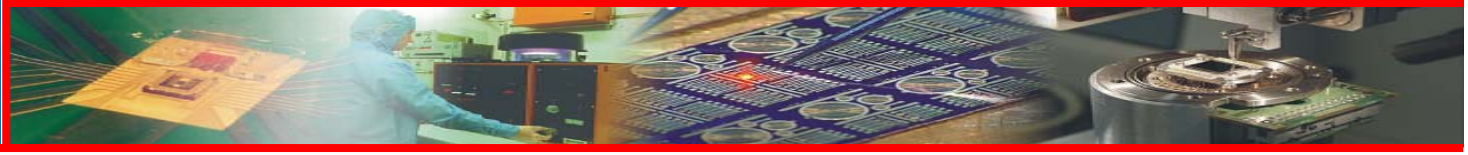
$P_{sample} = 147\ mW$
$D_{pore} = 2.5\ \mu m$

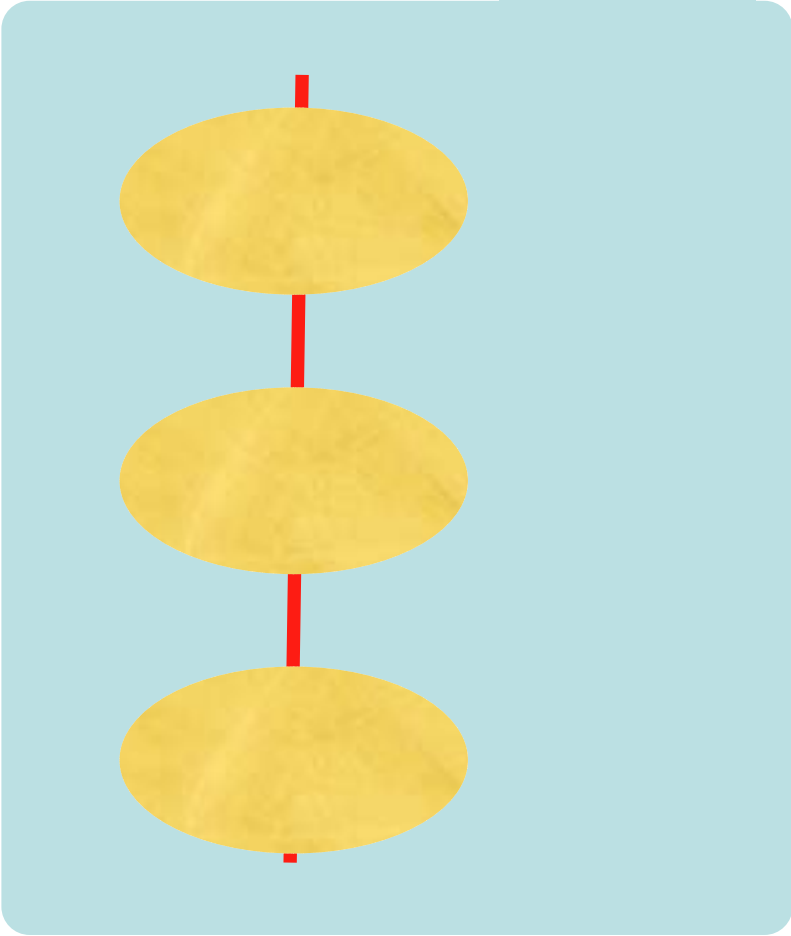
$P_{sample} = 270\ mW$
$D_{pore} = 4\ \mu m$

$P_{sample} = 360\ mW$
$D_{pore} > 6\ \mu m$

In collaboration with Paul Prentice & Paul Campbell, Univ. of Dundee

Project 1: Univ. St. Andrews (UK) & Lovalite (F)



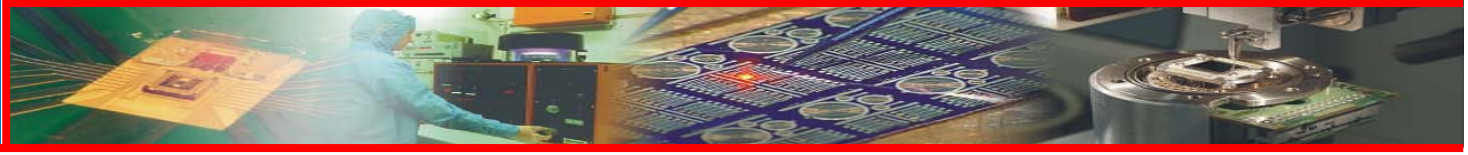


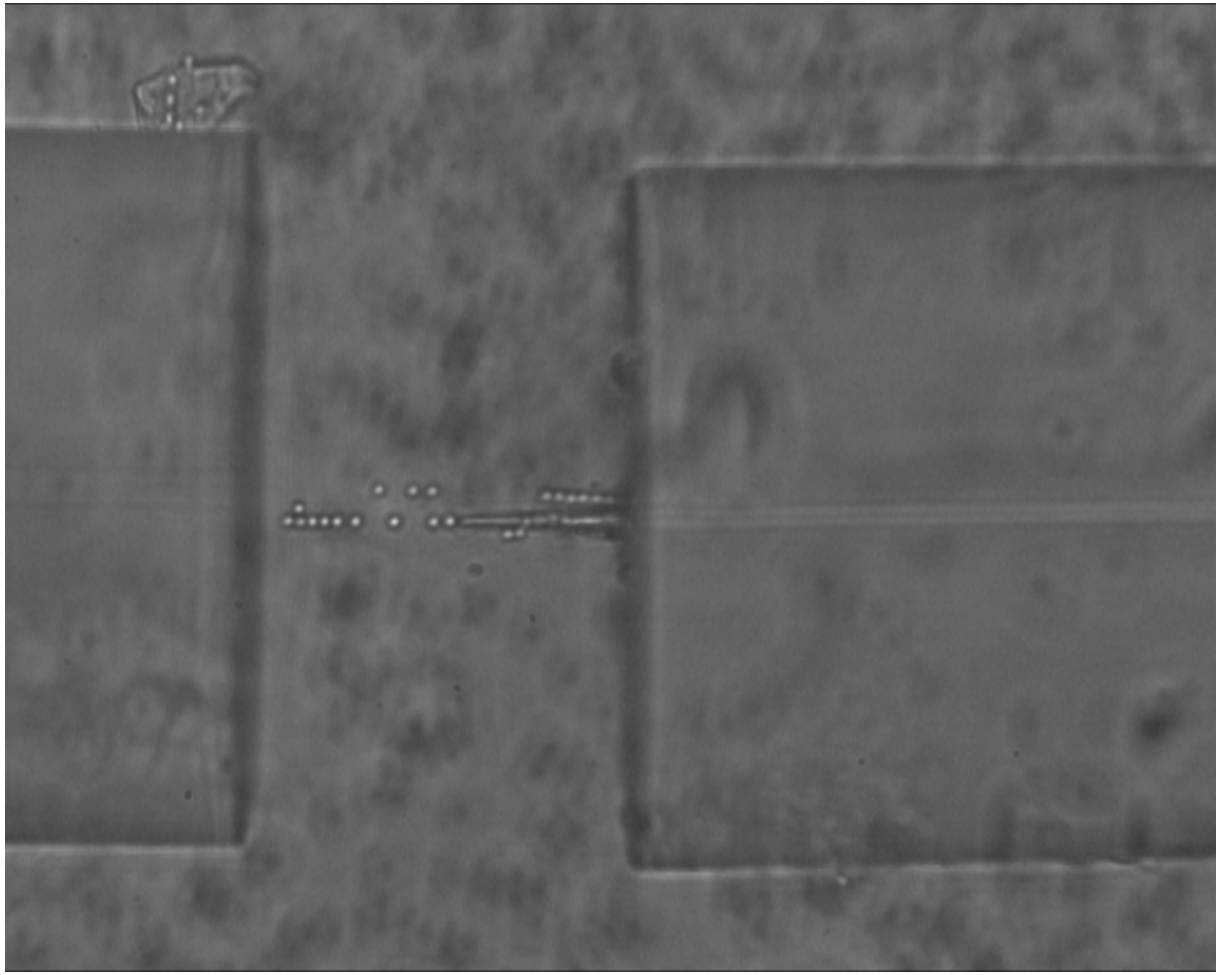
Bessel Photoporation

(The Optical Syringe)

- Non-gaussian light beams behave differently.
- The bessel beam preserves a non-diffracting central core over long distances.
- Can perform fs-poration over a much greater '*depth of focus.*'
- Beam also *'self-heals'* - is this a further advantage?

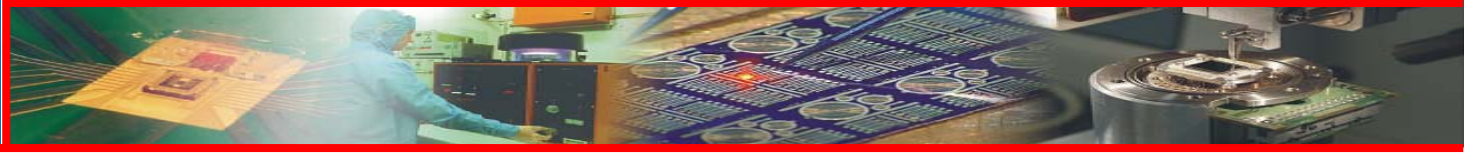
Project 1: Univ. St. Andrews (UK) & Lovalite (F)





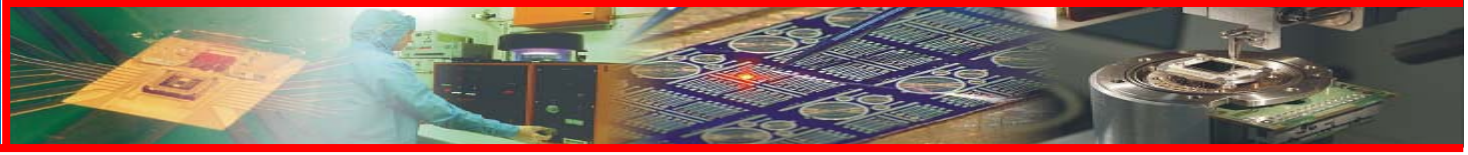
Optical trapping using *LovaLite* Tip

Project 2: Tech Univ. of Tampere (SF) & EOLITE (F)



Subject:	Micromachining of biodegradable implants and grooving of silicon wafers
Component:	Short pulse laser Eolite Corus 10G
Contract signed:	23 October 2007

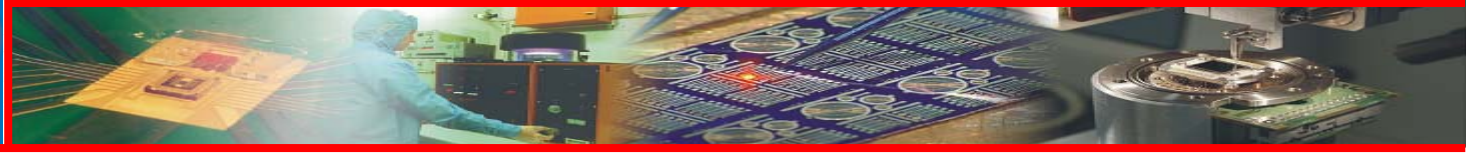
Project 2: Tech Univ. of Tampere (SF) & EOLITE (F)



- Optimal laser micromachining parameters for:
  - I. Biomaterials
  - II. Silicon wafers (grooving & dicing process)
  - III. Sintering and ablation of printed electronic conductors
- Research focus in process speed, product quality, quality assurance and automation

- Studies with Eolite fiber laser are made in the following projects:
  - Laser based manufacturing methods for functional multi-component materials (TT, Lasermenetelmien käyttö toiminnallisten yhdistelmämateriaalien valmistuksessa)
  - Print - New manufacturing methods for traditional electronics (TEKES, Perinteisen elektroniikan uudet valmistusmenetelmät)
  - Possibly other starting projects during the year 2008

Project 2: Tech Univ. of Tampere (SF) & EOLITE (F)



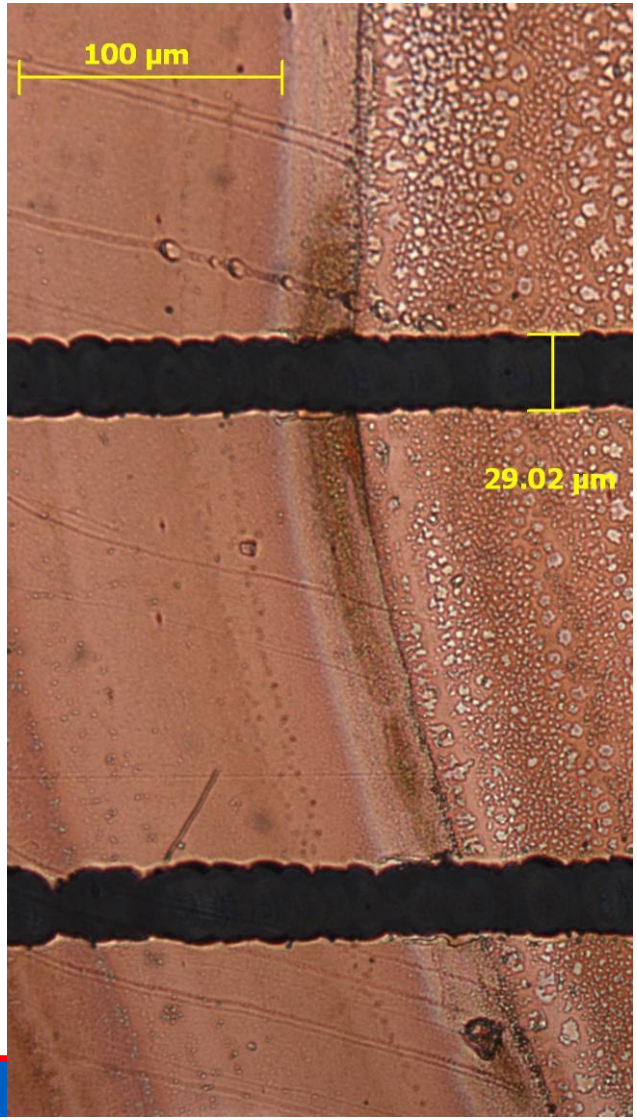
Direct writing in copper film on PET

Aim

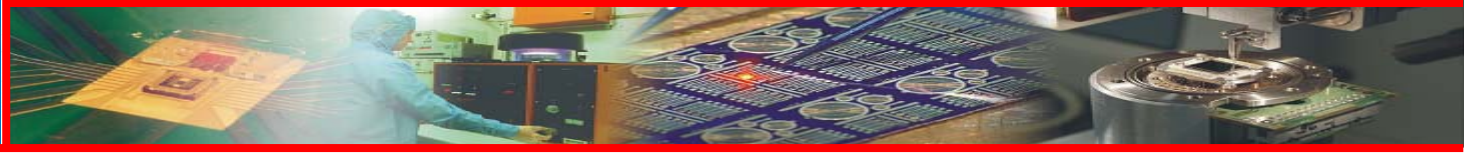
- Remove 200nm copper film braking conductivity
- No damage to PET allowed

Initial observations

- Very low power required, less than 0.4W
- High frequency gives best quality, 100kHz
- Feedrate up to 200mm/s
- No damage to PET

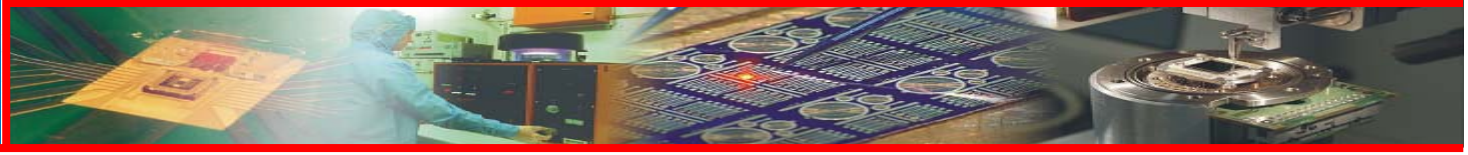


Project 3: University of Latvia (Let) & Visionica (RUS)



Subject:	Adaptive Optics for Eye Physiology Studies
Component:	Optical Wavefront Sensor
Contract signed:	7 September 2007

Project 4: Univ. Politecnica de Madrid (E) & Fibrelogix (UK)

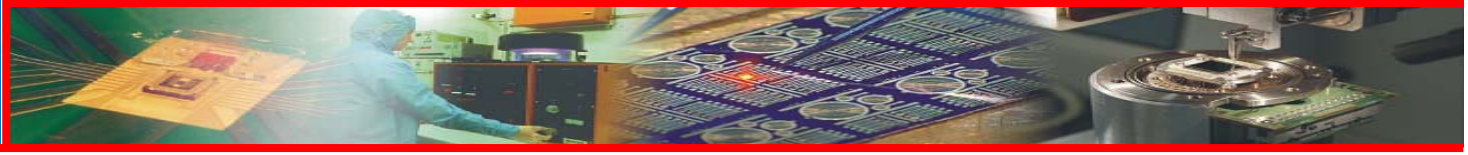


Subject: Testing new System Upgrade

Component: All Fibre Stripper

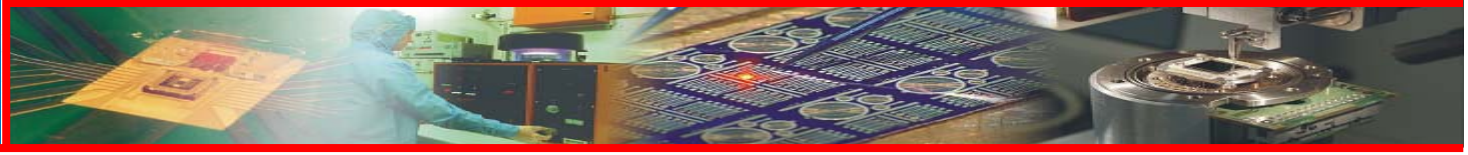
Contract signed: 7 November 2007

Project 5: Univ. Politecnica de Valenica (E) & Center for Integrated Photonics (UK)



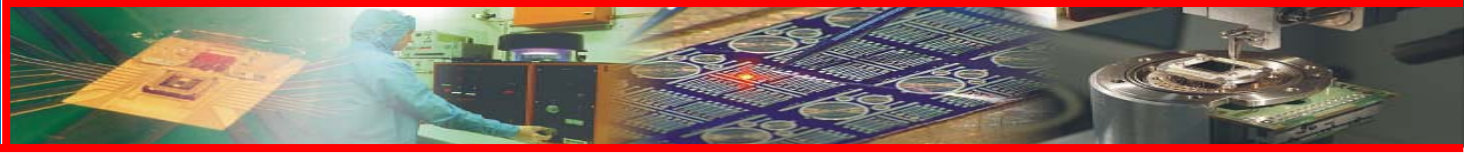
Subject:	Characterisation of Semiconductor Optical Amplifiers and Electroabsorbers and their use in novel applications
Component:	Semiconductor Optical Amplifiers
Contract signed:	9 September 2007

Project 6: University of Strathclyde (UK) & Cascade Technologies (UK)



Subject:	Detection of atmospheric trace gases
Component:	Quantum Cascade Lasers
Contract signed:	contract is under negotiation

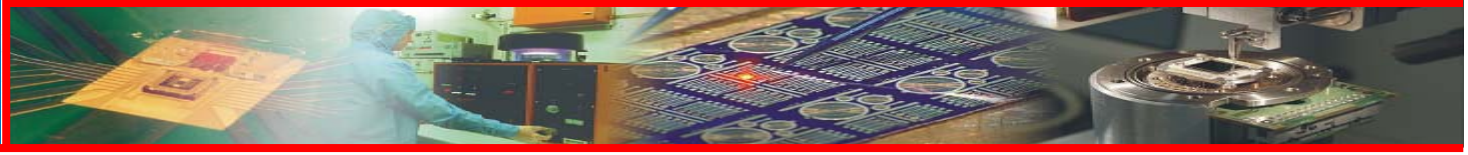
Overview on 2nd Call for Participation



Call 2 – Submitted components list:

- Ref.: ACCORD-Call2-001, Low-Noise Femtosecond Laser, One-Five (Switzerland)
- Ref.: ACCORD-Call2-002, Acousto-Optic Programmable Dispersive Filter (DAZZLER) for CARS time resolved vibrational spectroscopy, Fastlite (France)
- Ref.: ACCORD-Call2-003, Infrared Tunable All-Solid-State-Laser, Rainbow Photonics (Switzerland)
- Ref.: ACCORD-Call2-004, Elements for Conical Refraction, Conerefringent Optics (Spain)
- Ref.: ACCORD-Call2-005, High Temperature Dynamic Pressure Sensor for >1000°C Applications, Oxensis (United Kingdom)
- Ref.: ACCORD-Call2-006, High Power PM Fibre Coupled Isolator, Gooch & Housego (United Kingdom)
- Ref.: ACCORD-Call2-007, Ultra Low Ratio Fused Fibre Tap, Gooch & Housego (United Kingdom)

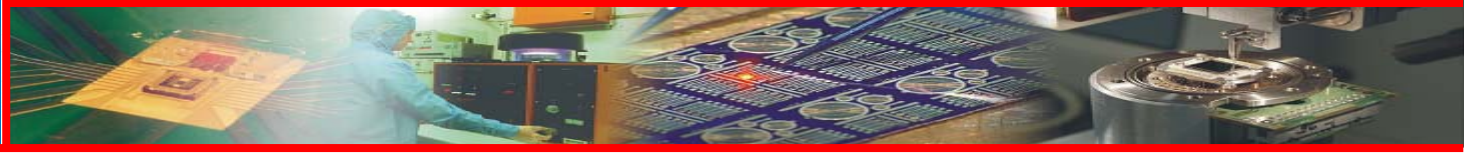
Overview on 2nd Call for Participation



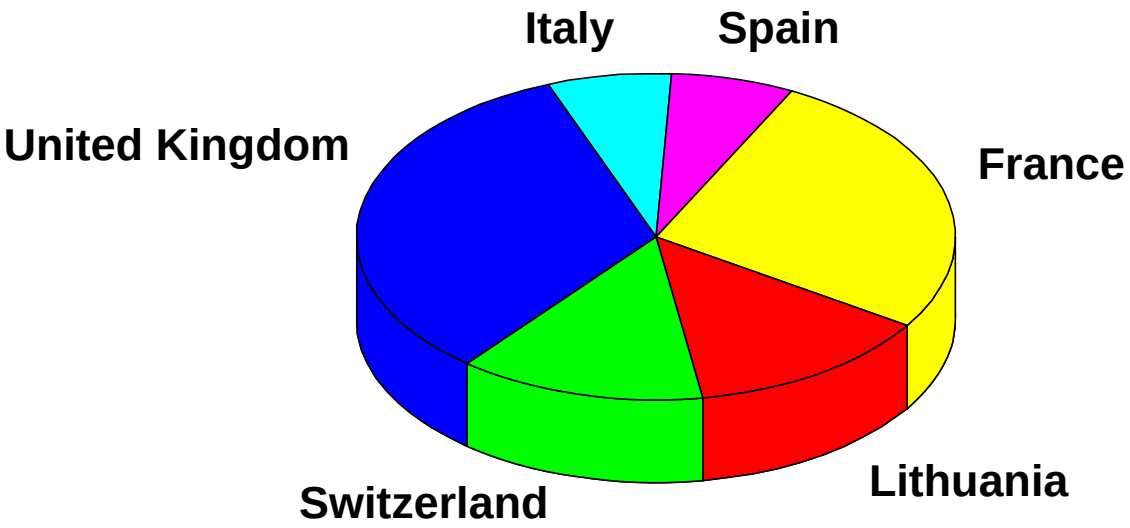
Call 2 – Submitted components list:

- Ref.: ACCORD-Call2-008, Photonic integrated circuits for time domain interleaving, Pirelli Labs (Italy)
- Ref.: ACCORD-Call2-009, 150 to 500 mW visible DPSS lasers, Oxxius (France)
- Ref.: ACCORD-Call2-010, Growth of High Performance GaN Based LEDs on ZnO Templates, Nanovation (France)
- Ref.: ACCORD-Call2-011, Synchromesh SISK, Altechna (Lithuania)
- Ref.: ACCORD-Call2-012, Laser diode driver LASCON, Altechna (Lithuania)
- Ref.: ACCORD-Call2-013, Genetic Adaptive Optics, Imagine Optics (France)
- Ref.: ACCORD-Call2-014, Optical Processing Components, CIP (United Kingdom)
- Ref.: ACCORD-Call2-015, High speed semiconductor laser device platform, CST (United Kingdom)

Overview on 2nd Call for Participation

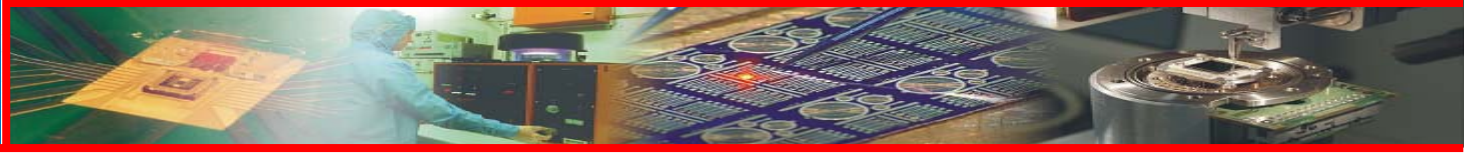


Geographical repartition:



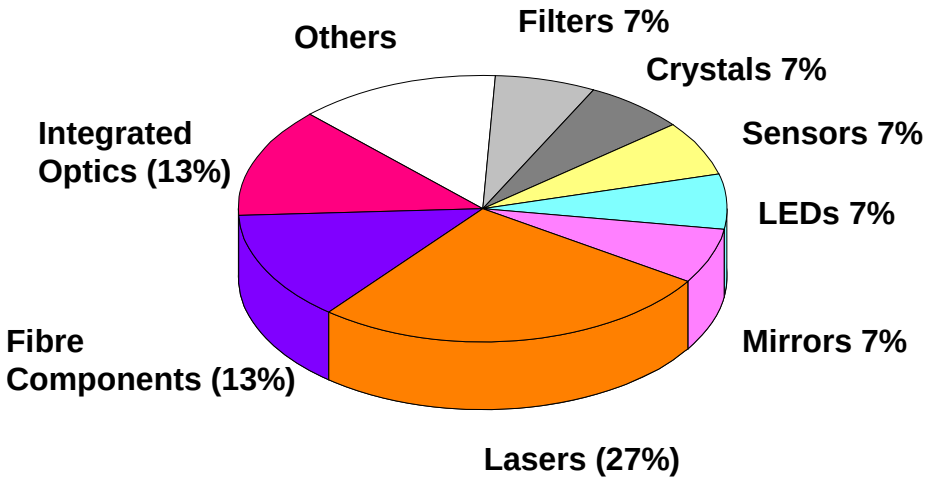
→ UNITED KINGDOM: 5
→ FRANCE: 4
→ SWITZERLAN: 2
→ LITHUANIA: 2
→ ITALY: 1
→ SPAIN: 1

Overview on 2nd Call for Participation



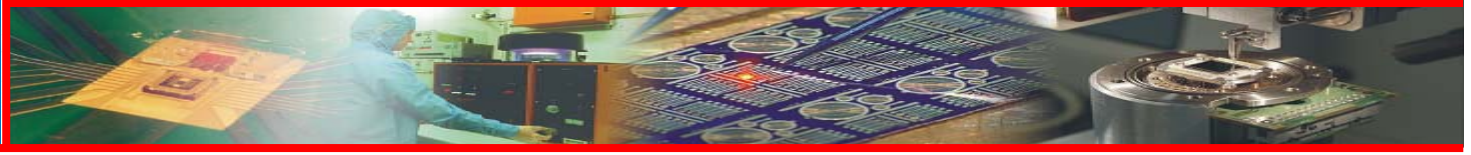
Devices classification:

- **Lasers:** One-Five, Rainbow Photonics, Oxxius, CST
- **Filter:** Fastlite
- **Fibre Optics Components:** Gooch & Housego
- **Adjustable Mirrors:** Imagine Optics
- **LED:** Nanovation
- **Others:** Altechna



Please register on www.ist-accord.org to get more information on the submitted devices

Communication channels



Communicate programme to Industries & Universities:

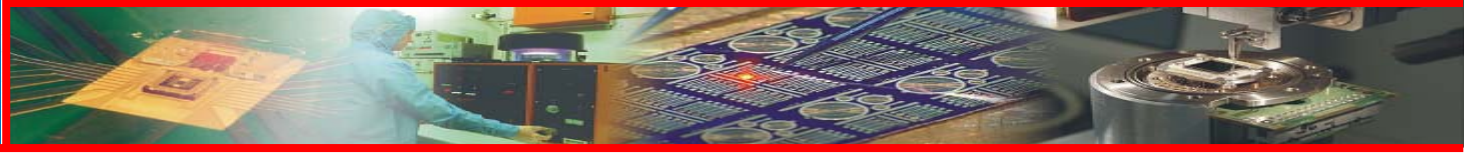
1. **Through websites & Newsletters EU-projects**
   - **OPERA, Photonics21, MONA, NEMO, ePhotonONe, ….**
2. **Through Newsletters & e-mail lists O&P organizations**
   - **EPIC, SOA, EOS, SPIE (Europe), ECOC, SAGEM press networks, IEEE regional 8 news, DLR, VDI, SFO, RNRT, COST,…**
3. **EC national contact points**
4. **EU Commission newsletters**

Communication Channels

Through interactive web site

www.ist-accord.org

Conclusions



1. ACCORD is an experiment!
2. Interests seem to be high
3. Challenge to set up proper “Call for …”
4. Challenge to set up proper evaluation process
5. Challenge to spread the news